

REMARKS

The Applicant notes that the Office Action indicates at page 8, paragraphs 8 and 9, that claims 21-28 are allowed and that claim 10 would be allowable if rewritten in independent form.

Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as obvious over Ryum, *et al.* (U.S. Publication Number 2002/0058388) in view of Arai (U.S. Publication Number 2004/023526). Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as obvious over Ryum, *et al.* in view of Arai and Kameyama, *et al.* (U.S. Patent No. 5,183,768). Claim 7 is rejected under 35 U.S.C. 103(a) as obvious over Ryum, *et al.* in view of Arai and Josquin, *et al.* (U.S. Patent No. 5,023,192). Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as obvious over Ryum, *et al.* in view of Arai and Ryum, *et al.* (U.S. Patent No. 5,798,277 - hereinafter Ryum '277). In view of the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

In the present invention of claims 1-10, a bipolar transistor includes second base semiconductor layers formed on the portions of a first base semiconductor layer except for the portions having an emitter region and emitter insulating layers. The second base semiconductor layers are different layers than the emitter region and the emitter insulating layers.

Ryum, *et al.* discloses a base layer (21b and 25) and an emitter layer (21a and 35) that are deposited on a collector layer (see Ryum, *et al.*, Fig. 3a). The emitter layer outside the emitter region is converted to a p++ first base semiconductor electrode film 21a by implanting BF<sub>2</sub> ions, while the emitter layer inside the emitter region 35 remains unchanged (see Ryum, *et al.*, page 3, paragraph 0018). The p++ first base semiconductor electrode film 21a and the emitter layer inside the emitter region are the same layer.

Ryum, *et al.* fails to teach or suggest that a bipolar transistor includes second base

semiconductor layers that are different layers than an emitter region and emitter insulating layers, as claimed in claims 1-10. Instead, in Ryum, *et al.*, the emitter layer inside the emitter region 35 remains unchanged, while the portion of the emitter layer outside the emitter region is ion implanted, creating the p++ first base semiconductor electrode film 21a, thus the emitter layer inside the emitter region is the same layer as the emitter layer outside the emitter region that is ion implanted.

Arai discloses a bipolar transistor with a base semiconductor layer. Arai fails to teach or suggest second base semiconductor layers.

Kameyama, *et al.* discloses the use of a SIC region. Kameyama, *et al.* fails to teach or suggest that a bipolar transistor includes second base semiconductor layers that are different layers than an emitter region and emitter insulating layers, as claimed in claims 1-10.

Josquin, *et al.* discloses the use of a cobalt or titanium silicide layer to improve ohmic contact. Josquin, *et al.* fails to teach or suggest that a bipolar transistor includes second base semiconductor layers that are different layers than an emitter region and emitter insulating layers, as claimed in claims 1-10.

Ryum '277 discloses the uses of spacer insulation films 12 and 13 between an Si oxidation film and a base thin film 19 (see Ryum '277 Fig. 4). Ryum '277 fails to teach or suggest that a bipolar transistor includes second base semiconductor layers that are different layers than an emitter region and emitter insulating layers, as claimed in claims 1-10.

Hence, none of the Ryum, *et al.* and Arai publications, and Kameyama, *et al.*, Josquin, *et al.*, and Ryum '277 patents teaches or suggests certain elements of the present invention set forth in claims 1-10. Specifically, none of the references teaches or suggests that a bipolar transistor

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includes second base semiconductor layers that are different layers than an emitter region and emitter insulating layers, as claimed in claims 1-10. Accordingly, there is no combination of the references which would provide such teaching or suggestion.

None of the references, taken alone or in combination, teaches or suggests the invention set forth in claims 1-10. Therefore, it is believed that claims 1-10 are allowable over the cited references, and reconsideration of the rejections of claims 1-3, and 6 under 35 U.S.C. § 103(a) based on Ryum, *et al.* and Arai is respectfully requested. Further, reconsideration of the rejections of claims 4 and 5 under 35 U.S.C. 103(a) based on Ryum, *et al.* in view of Arai and Kameyama, *et al.* is respectfully requested. In addition, reconsideration of the rejections of claim 7 under 35 U.S.C. 103(a) based on Ryum, *et al.* in view of Arai and Josquin, *et al.* is respectfully requested. In addition, reconsideration of the rejections of claims 8 and 9 under 35 U.S.C. 103(a) based on Ryum, *et al.* in view of Arai and Ryum '277 is respectfully requested.

In view of the amendments to the claims and the foregoing remarks, it is believed that, upon entry of this Amendment, all claims pending in the application will be in condition for allowance. Therefore, it is requested that this Amendment be entered and that the case be allowed and passed to issue. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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